

Amendment to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1 1. (Currently Amended) A method for generating a spot for use in halftoning,
2 comprising:
3 defining a spot function that combines two functions selected to provide a
4 predetermined spot shape for use in a halftone cell; and
5 scaling the spot function using a parameterized spot radius scaling function that varies
6 according to a value of a first and second spot function ordinate and a shape changing scaling
7 function.

1 2. (Original) The method of claim 1 wherein the two functions allow non-
2 separable changes in spot shape.

1 3. (Original) The method of claim 1 wherein the spot function is described
2 by:

3
$$f(x, y) = f_1(x, y) + f_2(x, y) / S(p, x, y),$$

4 where $f_1(x, y)$ and $f_2(x, y)$ are functions of x and/or y , and $S(p, x, y)$ is called the scaling
5 function and wherein if S is a function of radius $r = \sqrt{x^2 + y^2}$, then S may be written
6 equivalently $S(p, r)$.

1 7. (Currently Amended) A printing system, comprising:
2 a control unit for receiving a print file and processing the print file for printing;
3 a print head for conveying a print job according to the print file; and
4 a device for generating a spot for use in halftoning wherein the halftoning reproduces
5 an image defined by the print file using the print head, the device defines a spot function that
6 combines two functions selected to provide a predetermined spot shape for use in a halftone
7 cell and scales the spot function using a parameterized spot radius scaling function that varies
8 according to a value of a first and second spot function ordinate and a shape changing scaling
9 function.

1 8. (Original) The printing system of claim 7 wherein the two functions allow
2 non-separable changes in spot shape.

1 9. (Original) The printing system of claim 7 wherein the spot function used
2 by the device is described by:

3
$$f(x, y) = f_1(x, y) + f_2(x, y) / S(p, x, y),$$

4 where $f_1(x, y)$ and $f_2(x, y)$ are functions of x and/or y , and $S(p, x, y)$ is called the scaling
5 function and wherein if S is a function of radius $r = \sqrt{x^2 + y^2}$, then S may be written
6 equivalently $S(p, r)$.

1 10. (Original) The printing system of claim 7 wherein the spot function used
2 by the device is described by:

3
$$f(x, y) = \frac{1}{2} \left(\cos(\pi x / p_x) + \frac{1}{S(p, r)} \cos(\pi y / p_y) \right)$$

4 where x and y are the first and second spot function ordinates, p_x scales ordinate x, p_y scales
5 ordinate y, p is a spot shape parameter for controlling the shape of the spot, S(p,r) is a scaling
6 function, and r is the radius of the spot.

1 11. (Original) The printing system of claim 10 wherein the scaling function,
2 S(p,r), is described by:

3
$$S(p, r) = 1 + \frac{1}{p_m \sqrt{2\pi}} \exp \left(- \frac{(r / \sqrt{2} - 1/2)^2}{2p^2} \right),$$

4 where p_m sets a maximum ellipticity of the spot

1 12. (Original) The printing system of claim 7 wherein the spot function used
2 by the device comprises angular orientation defined by:

3
$$f(x, y) = \frac{1}{2} \left(\cos(\pi(x + y) / p_x) + \frac{1}{S(p, r)} \cos(\pi(x - y) / p_y) \right).$$

1 13. (Original) The printing system of claim 7 wherein the device is a
2 hardware card disposed between the control unit and the print head.

1 14. (Original) The printing system of claim 7 wherein the device is a
2 hardware card disposed within the control unit.

1 15. (Original) The printing system of claim 7 further comprising a print
2 program of a computer for generating the print file, wherein the device comprises screening
3 software loaded into the computer, the computer executing the screening software to perform
4 the halftoning.

1 16. (Original) The printing system of claim 7 wherein the device comprises
2 software loaded into the control unit, wherein the control unit executes the software to
3 perform the halftoning.

1 17. (Currently Amended) An article of manufacture comprising a program
2 storage medium readable by a computer, the medium tangibly embodying one or more
3 programs of instructions executable by the computer to perform a method for halftoning an
4 image, the method comprising:
5 defining a spot function that combines two functions selected to provide a
6 predetermined spot shape for use in a halftone cell; and
7 scaling the spot function using a parameterized spot radius scaling function that varies
8 according to a value of a first and second spot function ordinate and a shape changing scaling
9 function.

1 18. (Original) The article of manufacture of claim 17 wherein the two
2 functions allow non-separable changes in spot shape.

1 19. (Original) The article of manufacture of claim 17 wherein the spot
2 function is described by:

3
$$f(x, y) = f_1(x, y) + f_2(x, y) / S(p, x, y),$$

4 where $f_1(x, y)$ and $f_2(x, y)$ are functions of x and/or y , and $S(p, x, y)$ is called the scaling
5 function and wherein if S is a function of radius $r = \sqrt{x^2 + y^2}$, then S may be written
6 equivalently $S(p, r)$.

1 20. (Original) The article of manufacture of claim 17 wherein the spot
2 function is described by:

3
$$f(x, y) = \frac{1}{2} \left(\cos(\pi x / p_x) + \frac{1}{S(p, r)} \cos(\pi y / p_y) \right)$$

4 where x and y are the first and second spot function ordinates, p_x scales ordinate x , p_y scales
5 ordinate y , p is a spot shape parameter for controlling the shape of the spot, $S(p, r)$ is a scaling
6 function, and r is the radius of the spot.

1 21. (Original) The article of manufacture of claim 20 wherein the scaling
2 function, $S(p, r)$, is described by:

3
$$S(p, r) = 1 + \frac{1}{p_m \sqrt{2\pi}} \exp \left(- \frac{(r / \sqrt{2} - 1/2)^2}{2p^2} \right),$$

4 where p_m sets a maximum ellipticity of the spot.

1 22. (Original) The article of manufacture of claim 17 wherein the spot
2 function comprises angular orientation defined by:

3
$$f(x, y) = \frac{1}{2} \left(\cos(\pi(x + y) / p_x) + \frac{1}{S(p, r)} \cos(\pi(x - y) / p_y) \right).$$

1 23. (Currently Amended) A printing system, comprising:
2 means for receiving a print file and processing the print file for printing;
3 means for conveying a print job according to the print file; and
4 means for generating a spot for use in halftoning wherein the halftoning reproduces
5 an image defined by the print file using the print head, the means for generating a spot
6 defines a spot function that combines two functions selected to provide a predetermined spot
7 shape for use in a halftone cell and scales the spot function using a parameterized spot radius
8 scaling function that varies according to a value of a first and second spot function ordinate
9 and a shape changing scaling function.